

=> s cytokinin#

L3 10995 CYTOKININ#

=> s l3 (5a) (receptor#)

L4 141 L3 (5A) (RECEPTOR#)

=> s l4 (p) (assay or method or analyz? or agonist#)

L5 18 L4 (P) (ASSAY OR METHOD OR ANALYZ? OR AGONIST#)

=> d l5 1-18 bib ab

L5 ANSWER 1 OF 18 MEDLINE

AN 1999016587 MEDLINE

DN 99016587 PubMed ID: 9800205

TI Plant hormone perception and action: a role for G-protein signal transduction?.

AU Hooley R

CS Institute of Arable Crops Research (IACR), Department of Agricultural

Sciences, University of Bristol, UK.. richard.hooley@bbsrc.ac.uk  
SO PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY OF LONDON. SERIES B:

BIOLOGICAL SCIENCES, (1998 Sep 29) 353 (1374) 1425-30.

Ref: 55

Journal code: 7503623. ISSN: 0962-8436.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

General Review; (REVIEW)

(REVIEW, TUTORIAL)

LA English

FS Priority Journals; Space Life Sciences

EM 199901

ED Entered STN: 19990202

Last Updated on STN: 20000303

Entered Medline: 19990119

AB Plants perceive and respond to a profusion of environmental and endogenous

signals that influence their growth and development. The

G-protein

signalling pathway is a mechanism for transducing extracellular

signals

that is highly conserved in a range of eukaryotes and prokaryotes.

Evidence for the existence of G-protein signalling pathways in

higher

plants is reviewed, and their potential involvement in plant hormone

signal transduction evaluated. A range of biochemical and

molecular

studies have identified potential components of G-protein

signalling in

plants, most notably a homologue of the G-protein coupled

receptor

superfamily (GCR1) and the G alpha and G beta subunits of

heterotrimeric

G-proteins. G-protein \*\*\*agonists\*\*\* and antagonists are

known to

influence a variety of signalling events in plants and have been

used to

implicate heterotrimeric G-proteins in gibberellin and possibly

auxin

signalling. Antisense suppression of GCR1 in Arabidopsis leads to

a

phenotype which supports a role for this \*\*\*receptor\*\*\* in

\*\*\*cytokinin\*\*\* signalling. These observations suggest that

higher

plants have at least some of the components of G-protein

signalling

pathways and that these might be involved in the action of certain

plant

hormones.

L5 ANSWER 2 OF 18 MEDLINE

AN 1998171319 MEDLINE

DN 98171319 PubMed ID: 9512365

TI A new family of cytokinin receptors from Cereales.

AU Kulaeva O N; Zagranichnaya T K; Brovko F A; Karavaiko N N; Selivankina S

Y; Zemlyachenko Y V; Hall M; Lipkin V M; Boziev K M

CS Timiryazev Institute of Plant Physiology, Russian Academy of Sciences,

Moscow.. vladimir@ad.plantphys.msk.ru

SO FEBS LETTERS, (1998 Feb 20) 423 (2) 239-42.

Journal code: 0155157. ISSN: 0014-5793.

CY Netherlands

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199804

ED Entered STN: 19980410

Last Updated on STN: 19980410

Entered Medline: 19980402

AB The highly specific recognition of a natural cytokinin,

trans-zeatin, by

cytokinin-binding protein (CBP) of 67 kDa from barley leaves

was detected

with an \*\*\*assay\*\*\* developed on the basis of cytokinin

competition in

ELISA with anti-idiotypic antibodies (raised against antibodies to zeatin)

for complex formation with CBP. Monoclonal antibodies (mAbs)

raised

against 70 kDa CBP from etiolated maize seedlings cross-reacted

with

barley 67 kDa CBP and prevented barley CBP and trans-zeatin

induced

activation of transcription elongation directed by RNA

polymerase I

associated with barley chromatin. One mAb (Z-6) had an

agonistic effect.

Maize CBP replaced barley CBP in activation of RNA synthesis

with

cytokinin in the barley transcription system. Hence, a new family

of

\*\*\*cytokinin\*\*\* \*\*\*receptors\*\*\* with common functions and immunodeterminants including maize and barley CBPs was found.

L5 ANSWER 3 OF 18 MEDLINE

AN 96098194 MEDLINE

DN 96098194 PubMed ID: 8562647

TI [Interaction of cytokines with cellular receptors].

Vzaimodeistvie tsitokinov s kletochnymi retseptorami.

AU Danilovich A V; Dzantiev B B

SO BIOKHMIIA, (1995 Sep) 60 (9) 1382-95. Ref: 102

Journal code: 0372667. ISSN: 0320-9725.

CY RUSSIA: Russian Federation

DT Journal; Article; (JOURNAL ARTICLE)

General Review; (REVIEW)

(REVIEW, TUTORIAL)

LA Russian

FS Priority Journals

EM 199603

ED Entered STN: 19960315

Last Updated on STN: 19960315

Entered Medline: 19960301

AB The cytokinin family includes biologically active polypeptide molecules secreted by haemopoietic and immunocompetent cells which control cell proliferation and differentiation. \*\*\*Cytokinin\*\*\* interactions with specific \*\*\*receptors\*\*\* of the cell surface results in oligomerization of these receptors, i.e. in association of two or more membrane molecules. It is becoming obvious that oligomerization of receptors is an indispensable stage in the manifestation by cytokinins of their biological activity. In this context, studies of regularities of \*\*\*cytokinin\*\*\* \*\*\*receptor\*\*\* interactions resulting in \*\*\*receptor\*\*\* oligomerization is important for both elucidation of molecular mechanisms underlying kinin action and construction of compounds having the properties of \*\*\*agonists\*\*\* (or antagonists) of \*\*\*cytokinin\*\*\* -induced oligomerization of membrane \*\*\*receptors\*\*\*. A conclusion is drawn about the important role of polyvalent \*\*\*cytokinin\*\*\* interactions with cell \*\*\*receptors\*\*\* in the initiation of oligomerization and subsequent formation of functionally active receptor complex.

L5 ANSWER 4 OF 18 MEDLINE  
 AN 85185467 MEDLINE  
 DN 85185467 PubMed ID: 3989817  
 TI Quantitative structure-activity relationships in cytokinin agonistic and antagonistic pyrido[2,3-d]pyrimidine derivatives: insights into receptor topology.  
 AU Iwamura H; Murakami S; Koshimizu K; Matsubara S  
 SO JOURNAL OF MEDICINAL CHEMISTRY, (1985 May) 28 (5) 577-83.  
 Journal code: 9716531. ISSN: 0022-2623.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 198506  
 ED Entered STN: 19900320  
 Last Updated on STN: 19900320  
 Entered Medline: 19850603  
 AB 2-(Methylthio)pyrido[2,3-d]pyrimidines having various alkylamino and anilino substituents at the 4-position were prepared and tested for their cytokinin agonistic and antagonistic activities by the tobacco callus bioassay. The alkyl series of compounds showed anticytokinin activity, whereas the anilino derivatives exhibited both cytokinin and anticytokinin activities depending on the structure and position of the benzene substituents. Quantitative structure-activity analyses were carried out for each class and for the combined set of compounds with use of physicochemical parameters and regression analysis, indicating that the quality of activity, agonistic or antagonistic, as well as the extent of activity, is significantly affected by the steric features of the molecule. On the basis of the present results and previous quantitative analyses on cytokinins and other classes of anticytokinins, a dimensional

map for the \*\*\*cytokinin\*\*\* \*\*\*receptor\*\*\* site can be drawn, which can serve as the basis for the design of novel \*\*\*agonists\*\*\* and antagonists.

L5 ANSWER 5 OF 18 MEDLINE  
 AN 83216014 MEDLINE  
 DN 83216014 PubMed ID: 6854586  
 TI Quantitative aspects of the \*\*\*receptor\*\*\* binding of \*\*\*cytokinin\*\*\* \*\*\*agonists\*\*\* and antagonists.  
 AU Iwamura H; Masuda N; Koshimizu K; Matsubara S  
 SO JOURNAL OF MEDICINAL CHEMISTRY, (1983 Jun) 26 (6) 838-44.  
 Journal code: 9716531. ISSN: 0022-2623.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 198307  
 ED Entered STN: 19900319  
 Last Updated on STN: 19900319  
 Entered Medline: 19830708  
 AB Congeneric 4-anilino- and 4-(alkylamino)-2-methylpyrrolo[2,3-d]pyrimidines showed cytokinin and anticytokinin activities, depending on the structure of their 4-substituents, and the antagonistic nature of the latter was established kinetically. The effect of the substituent on these activities was analyzed quantitatively by using physicochemical parameters and regression analysis to give a single, common equation for both the agonists and antagonists. The results indicated that the maximum width of the N4 substituents is an important factor both for binding to the receptor, thus the extent of activity, and for the quality of activity, agonistic or antagonistic. The electron-withdrawing effect and hydrophobicity of the substituents further enhance binding and, thus, activity, irrespective of the quality of the activity. These results coincide with and/or provide evidence for the hypothesis that in hormonal action, agonist binding causes a conformational change of an otherwise inactive receptor to the active form and that antagonists are species that bind similarly to the receptor but do not cause the effective conformational change.

L5 ANSWER 6 OF 18 CAPLUS COPYRIGHT 2002 ACS  
 AN 2001:490636 CAPLUS  
 DN 135:222727  
 TI Chemical modification of components of the cotton cytokinin hormone-receptor complex for creation of pesticide biosensors  
 AU Uzbekov, V. V.; Veshkurova, O. N.; Sagdiev, N. Zh.; Salikhov, Sh. I.  
 CS A. S. Sadykov Institute of Bioorganic Chemistry, Academy of Sciences of the Republic of Uzbekistan, Tashkent, 700143, Uzbekistan  
 SO Chemistry of Natural Compounds (Translation of Khimiya Prirodnikh Soedinenii) (2001), Volume Date 2000, 36(6), 611-615  
 CODEN: CHNCA8; ISSN: 0009-3130  
 PB Consultants Bureau  
 DT Journal  
 LA English  
 AB Highly specific polyclonal antibodies to the cotton \*\*\*cytokinin\*\*\* \*\*\*receptor\*\*\* were isolated and labeled with fluorescein isothiocyanate

to give a conjugate of the natural phytohormone zeatin riboside with

bovine serum albumin. The possible use of cotton

\*\*\*cytokinin\*\*\*

\*\*\*receptor\*\*\* as a biosensor to \*\*\*analyze\*\*\* pesticides, phenylurea derivs., was investigated.

RE.CNT 8 THERE ARE 8 CITED REFERENCES

AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 2000:736672 CAPLUS

DN 134:219648

T1 Cytokinin receptor

AU Kobayashi, Koh

CS Laboratory of Life Science, Tokyo Gakugei University, Tokyo, Koganei-shi,

184-8501, Japan

SO Shokubutsu no Kagaku Chosetsu (2000), 35(1), 43-55

CODEN: SKACD7; ISSN: 0388-9130

PB Shokubutsu Kagaku Chosetsu Gakkai

DT Journal; General Review

LA Japanese

AB A review with 65 refs. on cytokinin-binding proteins (CBPs),

\*\*\*method\*\*\* of binding of cytokinins and CBPs, new tests for

\*\*\*cytokinin\*\*\* \*\*\*receptors\*\*\*, discovery of new CBPs,

\*\*\*cytokinin\*\*\* \*\*\*receptors\*\*\* and signal transduction,

and future

prospects for \*\*\*cytokinin\*\*\* \*\*\*receptors\*\*\*

L5 ANSWER 8 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 2000:212104 CAPLUS

DN 133:130445

T1 Isolation of cDNA encoding cytokinin-binding proteins in maize

AU Laman, A. G.; Shepelyakovskaya, A. O.; Bulgakova, E. V.;

Shavkunov, A. S.;

Kurdyukov, S. G.; Brovko, F. A.; Lipkin, V. M.; Kulaeva, O. N.

CS Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry,

Russian Academy

of Sciences, Pushchino, 142292, Russia

SO Russian Journal of Plant Physiology (Translation of Fiziologiya

Rastanii

(Moscow)) (2000), 47(1), 76-83

CODEN: RJPPE2; ISSN: 1021-4437

PB MAIK Nauka/Interperiodica Publishing

DT Journal

LA English

AB Two approaches were used to enrich RNA isolated from

etiolated maize (*Zea*

mays L.) seedlings with mRNAs for the \*\*\*receptor\*\*\*

\*\*\*cytokinin\*\*\*

-binding protein CBP70. The first \*\*\*method\*\*\* was

immunoaffinity

chromatog. of polysomes using immobilized monoclonal

antibodies against

CBP70, and the second one was polysome affinity chromatog. on

immobilized

zeatin riboside. RNA obtained by both methods and enriched with

sequences

encoding the \*\*\*cytokinin\*\*\* \*\*\*receptor\*\*\* was used for

constructing cDNA libraries in the .lambda.MOSELox expression

vector in

the *Escherichia coli* cells, strain B834(DE3). Clones were

screened for

CBP70 synthesis using monoclonal antibodies against this protein.

Among

15,000 clones from the cDNA library constructed by the first

\*\*\*method\*\*\* and 5000 clones from the cDNA library

obtained by the

second \*\*\*method\*\*\*, 38 and 12 clones, resp., cross-reacted

with

antibodies against CBP70. Immunoblotting of polypeptides from

lysates of

these pos. clones detected the polypeptides close to CBP70 in their

mol

wt. Thus, cDNAs corresponding to mRNAs for the

cytokinin-binding protein

were obtained by two independent methods. The developed exptl.

approaches

can be recommended for enriching the total RNA fraction with

infrequent

mRNAs.

RE.CNT 29 THERE ARE 29 CITED REFERENCES

AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1999:470779 CAPLUS

DN 131:226070

T1 A role for G proteins in plant hormone signalling?

AU Hooley, Richard

CS Institute of Arable Crops Research (IACR)-Long Ashton

Research Station,

Department of Agricultural Sciences, University of Bristol,

Bristol, BS41

9AF, UK

SO Plant Physiology and Biochemistry (Paris) (1999), 37(5),

393-402

CODEN: PPBIEX; ISSN: 0981-9428

PB Editions Scientifiques et Medicales Elsevier

DT Journal; General Review

LA English

AB A review with 50 refs. The G protein signalling pathway is one of the

most highly conserved mechanisms that enables cells to sense and respond

to changes in their environment. Essential components of this are cell

surface G protein-coupled receptors (GPCRs) that perceive

extracellular

ligands, and heterotrimeric G proteins (G proteins) that transduce

information from activated GPCRs to down-stream effectors such

as enzymes

or ion channels. It is now clear from a range of biochem. and mol.

studies that some potential G protein signalling components exist

in

plants. The best examples of these are the seven transmembrane

receptor

homolog GCR1 and the G.alpha. (GPA1) and G.beta. (G.beta.1)

subunit

homologues of heterotrimeric G proteins. G protein

\*\*\*agonists\*\*\* and

antagonists are known to influence a variety of signalling events

in

plants and have been used to implicate G proteins in a range of

signalling

pathways that include the plant hormones gibberellin and auxin.

Furthermore, antisense suppression of GCR1 expression in

*Arabidopsis* leads

to a phenotype that supports a role for this \*\*\*receptor\*\*\* in

\*\*\*cytokinin\*\*\* signalling. This review considers the current

evidence

for and against functional G protein signalling pathways in higher

plants

and questions whether or not these might be involved in the action

of

certain plant hormones.

RE.CNT 50 THERE ARE 50 CITED REFERENCES

AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1998:705854 CAPLUS

DN 130:78662

TI Plant hormone perception and action: a role for G-protein signal transduction?

AU Hooley, Richard

CS Institute of Arable Crops Research (IACR)-Long Ashton Research Station,

University of Bristol, Long Ashton, Bristol, BS41 9AF, UK

SO Philosophical Transactions of the Royal Society of London, Series B:

Biological Sciences (1998), 353(1374), 1425-1430

CODEN: PTRBAE; ISSN: 0962-8436

PB Royal Society

DT Journal; General Review

LA English

AB A review with 55 refs. Plants perceive and respond to a profusion of environmental and endogenous signals that influence their growth and development. The G-protein signalling pathway is a mechanism for transducing extracellular signals that is highly conserved in a range of eukaryotes and prokaryotes. Evidence for the existence of G-protein signalling pathways in higher plants is reviewed, and their potential involvement in plant hormone signal transduction evaluated. A range of biochem. and mol. studies have identified potential components of G-protein signalling in plants, most notably a homolog of the G-protein coupled receptor superfamily (GCR1) and the G.alpha. and G.beta. subunits of heterotrimeric G-proteins. G-protein \*\*\*agonists\*\*\* and antagonists are known to influence a variety of signalling events in plants and have been used to implicate heterotrimeric G-proteins in gibberellin and possibly auxin signalling. Antisense suppression of GCR1 in Arabidopsis leads to a phenotype which supports a role for this \*\*\*receptor\*\*\* in \*\*\*cytokinin\*\*\* signalling. These observations suggest that higher plants have at least some of the components of G-protein signalling pathways and that these might be involved in the action of certain plant hormones.

RE.CNT 55 THERE ARE 55 CITED REFERENCES

AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1998:121306 CAPLUS

DN 128:241775

TI A new family of cytokinin receptors from Cereales

AU Kulaeva, O. N.; Zagranchnaya, T. K.; Brovko, F. A.;

Karavaiko, N. N.;

Selivankina, S. Yu.; Zemlyachenko, Ya. V.; Hall, M.; Lipkin, V. M.;

Boziev, Kh. M.

CS Botanicheskaya 35, Timiryazev Institute of Plant Physiology, Russian

Academy of Sciences, Moscow, 127276, Russia

SO FEBS Letters (1998), 423(2), 239-242

CODEN: FEBLAL; ISSN: 0014-5793

PB Elsevier Science B.V.

DT Journal

LA English

AB The highly specific recognition of a natural cytokinin, trans-zeatin, by

cytokinin-binding protein (CBP) of 67 kDa from barley leaves

was detected

with an \*\*\*assay\*\*\* developed on the basis of cytokinin competition in

ELISA with anti-idiotypic antibodies (raised against antibodies to zeatin)

for complex formation with CBP. Monoclonal antibodies (mAbs) raised

against 70 kDa CBP from etiolated maize seedlings cross-reacted with

barley 67 kDa CBP and prevented barley CBP and trans-zeatin induced

activation of transcription elongation directed by RNA polymerase I

assocd. with barley chromatin. One mAb (Z-6) had an agonistic effect.

Maize CBP replaced barley CBP in activation of RNA synthesis with

cytokinin in the barley transcription system. Hence, a new family of

\*\*\*cytokinin\*\*\* \*\*\*receptors\*\*\* with common functions and immunodeterminants including maize and barley CBPs was found.

L5 ANSWER 12 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1994:102063 CAPLUS

DN 120:102063

TI Immuno-analyses of zeatin metabolic enzymes of Phaseolus

AU Mok, D. W. S.; Mok, M. C.; Martin, R. C.; Bassil, N.; Shaw, G.

CS Cent. Gene Res. Biotechnol., Oregon State Univ., Corvallis, OR, 97331, USA

SO Physiol. Biochem. Cytokinins Plants, Symp. (1992), Meeting Date 1990,

17-23. Editor(s): Kaminek, Miroslav; Mok, David W. S.; Zazimalova, Eva.

Publisher: SPB Acad. Publ., The Hague, Neth.

CODEN: 59KXA9

DT Conference

LA English

AB Systematic analyses of zeatin metab. in Phaseolus embryos have led to the

detection of qual. differences between species and the identification of

O-xylosyl derivs., a group of new metabolites in Phaseolus species. In

addn., specific enzymes responsible for the formation of different O-glycosyl derivs. have been isolated. A monoclonal antibody to the

zeatin O-glycosyltransferases was generated which will facilitate the

isolation of genes coding for these enzymes. More importantly, as the

enzymes are zeatin-specific, they may be utilized to generate monoclonal

antibodies recognizing zeatin binding site(s) which could be useful in the

study of \*\*\*cytokinin\*\*\* \*\*\*receptors\*\*\*. The amino acid and gene

sequences of such enzymes may assist the identification of consensus

sequences of enzymes involved in cytokinin metab. As these enzymes are

organ specific and species variable (but immunol. crossreactive), they

should be valuable for \*\*\*analyzing\*\*\* the developmental controls and

genetic divergence of zeatin metab.

L5 ANSWER 13 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1993:666633 CAPLUS

DN 119:266633

TI Identification of cytokinin receptors by means of structure-activity responses

AU Corse, J.; Pacovsky, R. S.; Brandon, D. I.; McKeon, T. A.  
CS West. Reg. Res. Cent., Agric. Res. Serv., Albany, CA, 94710, USA

SO Physiol. Biochem. Cytokinins Plants, Symp. (1992), Meeting Date 1990,

211-14. Editor(s): Kaminek, Miroslav; Mok, David W. S.; Zazimalova, Eva.

Publisher: SPB Acad. Publ., The Hague, Neth.

CODEN: 59KXA9

DT Conference

LA English

AB Activities of R- (I) and S-N-6-(.alpha.-phenyl-.alpha.-methyl)methyladenines and R- (II) and

S-N-6-(.alpha.-1-naphthyl-.alpha.-methyl)methyladenines were examd. in a soybean callus

\*\*\*assay\*\*\*

While structure-activity responses can distinguish

\*\*\*cytokinin\*\*\*

\*\*\*receptors\*\*\* (which are necessary for physiol. action) from inactive

binding proteins, the studies give little insight into explicit effect of

stereochem. differences. The orientations of the groups around the optically active carbon atoms in I and II are similar, yet the relative

activities of their enantiomers are opposite.

L5 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1993:644827 CAPLUS

DN 119:244827

TI Comparison of the sensitivity and reliability of cytokinin-binding assays

using highly purified soluble binding protein

AU Kaminek, M.; Fox, J. E.

CS ARCO Plant Cell Res. Inst., Dublin, CA, 94568, USA

SO Physiol. Biochem. Cytokinins Plants, Symp. (1992), Meeting Date 1990,

461-7. Editor(s): Kaminek, Miroslav; Mok, David W. S.; Zazimalova, Eva.

Publisher: SPB Acad. Publ., The Hague, Neth.

CODEN: 59KXA9

DT Conference

LA English

AB Ultrafiltration and equil. dialysis cytokinin-binding assays gave the most

reliable results. The advantage of the former method is its speed, which

allows the assay of less stable ligands and binding proteins. Also, it

does not require cytokinins of very high specific radioactivity as compared with equil. dialysis. Results obtained by using the ammonium

sulfate pptn. binding assay are affected by many factors which are difficult to control, esp. at low CBF-I concns., and thus may give false

data.

L5 ANSWER 15 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1989:52851 CAPLUS

DN 110:52851

TI Development of s-triazine anticytokinins and their quantitative structure-activity relationship

AU Shimizu, Ryo; Iwamura, Hajime; Matsubara, Satoshi; Fujita, Toshio

CS Fac. Agric., Kyoto Univ., Kyoto, 606, Japan

SO J. Agric. Food Chem. (1989), 37(1), 236-40

CODEN: JAFCAU; ISSN: 0021-8561

DT Journal

LA English

AB A new, nonadenylate series of anticytokinins, N2-substituted 2-amino-4-chloro-6-(ethylamino)-s-triazines, has been developed. The

activity in terms of the I50 value of the most potent members was (0.3-0.5) times. 10-6M when examd. by the tobacco (Nicotiana tabacum)

callus \*\*\*assay\*\*\* in the presence of 0.05 times. 10-6 M kinetin.

The design of the mol. was made on the basis of insight into the active

structure obtained from a \*\*\*cytokinin\*\*\* \*\*\*receptor\*\*\* map drawn

previously. Quant. anal. of their structure-activity relationship showed

that the mode of their binding to the receptor was in important ways the

same as for previously known anticytokinins, the structure of which

resembles the adenylyl cytokinins.

L5 ANSWER 16 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1983:193273 CAPLUS

DN 98:193273

TI Quantitative aspects of the \*\*\*receptor\*\*\* binding of \*\*\*cytokinin\*\*\* \*\*\*agonists\*\*\* and antagonists

AU Iwamura, Hajime; Masuda, Noboru; Koshimizu, Koichi;

Matsubara, Satoshi

CS Fac. Agric., Kyoto Univ., Kyoto, 606, Japan

SO J. Med. Chem. (1983), 26(6), 838-44

CODEN: JMCMAR; ISSN: 0022-2623

DT Journal

LA English

AB Congeneric 2-methylpyrrolo[2,3-d]pyrimidines I, (R = anilino- or

alkylamino) showed cytokinin and anticytokinin activities, depending on

the structure of their 4-substituents, and the antagonistic nature of the

latter was established kinetically. The effect of the substituent on these activities was analyzed quant. by using physicochem.

parameters and

regression anal. to give a single, common equation for both the agonist

and antagonist. The results indicated that the max. width of the N4

substituents is an important factor both for binding to the receptor, thus

the extent of activity, and for the quality of activity, agonistic or antagonistic. The electron-withdrawing effect and hydrophobicity

of the substituents further enhance binding and, thus, activity, irresp. of the

quality of the activity. These results coincide with and/or provide evidence for the hypothesis that in hormonal action, agonist

binding causes a conformational change of an otherwise inactive receptor

to the active form and that antagonists are species that bind similarly to the

receptor but do not cause the effective conformational change.

L5 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2002 ACS

AN 1981:617730 CAPLUS

DN 95:217730

TI Uptake of [14C]-8-azido-N6-benzyladenine, a radioactive photosensitive

cytokinin, by the cells of the moss Funaria hygrometrica L

AU Miassod, R.

CS Lab. Biochim. Veg., Univ. Aix-Marseille, Marseille, 13288/2,

Fr.  
 SO Metab. Mol. Act. Cytokinins, Proc. Int. Colloq. (1981), Meeting  
 Date 1980,  
 162-71. Editor(s): Guern, Jean; Peaud-Lenoel, Claude. Publisher:  
 Springer, Berlin, Fed. Rep. Ger.  
 CODEN: 46QMA8  
 DT Conference  
 LA English  
 AB [14C]-8-azido-N6-benzyladenine (I) was taken up continuously  
 by F.  
 hygrometrica protonemata over a 40-h incubation period.  
 p-Bromo-N6-benzyladenine (II) and 8-azido-N6-benzyl-8-(1-  
 ethoxyethyl)adenine (III) stimulated I uptake. In the cytokinin  
 moss  
 \*\*\*assay\*\*\*, III was inactive and II displayed weak activity  
 only at  
 high concn., whereas protonemata formed gametophyte buds in  
 response to I  
 with or without II and III. Autoradiog. studies showed that I was  
 concd.  
 in the 3 terminal cells of caulonema filaments after 16 h but was  
 present  
 in 6-7 terminal cells after 26-36 h of incubation of moss  
 protonemata.  
 Autoradiograms probably show I complexes with high affinity  
 sites in  
 cytokinin-target cells as well as with sites unrelated to hormone  
 effect  
 present in all cells, esp. actively dividing ones. In protonemata  
 incubated with I and III, Ag grains accumulated only in  
 caulonema cells  
 5-7; thus III seems to compete efficiently for biol. meaningless  
 sites.  
 II seemed to be inefficient in removing I from nonbiol. sites.  
 Thus, I  
 seems to be useful as a \*\*\*cytokinin\*\*\* - \*\*\*receptor\*\*\*  
 probe  
 provided its interaction with other cellular components is  
 considered.

L5 ANSWER 18 OF 18 CAPLUS COPYRIGHT 2002 ACS  
 AN 1981:12425 CAPLUS  
 DN 94:12425  
 TI Interaction of a radiolabeled cytokinin photoaffinity probe with a  
 receptor protein  
 AU Keim, Paul; Fox, J. Eugene  
 CS Dep. Biochem., Univ. Kansas, Lawrence, KS, 66045, USA  
 SO Biochem. Biophys. Res. Commun. (1980), 96(3), 1325-34  
 CODEN: BBRC A9; ISSN: 0006-291X  
 DT Journal  
 LA English  
 AB A photoreactive analog of the cytokinin 6-benzylaminopurine  
 was prepd. by  
 the \*\*\*method\*\*\* of J. B. Theiler et. al. (1976) modified so as  
 to  
 include a radioactive atom in the final product, [methylene-14C]  
 2-azido-6-benzylaminopurine. The affinity of this doubly labeled  
 cytokinin probe for a previously described \*\*\*cytokinin\*\*\*  
 \*\*\*receptor\*\*\* protein (Fox, J. E.; Erion, J. L., 1975, 1977) is  
 very  
 nearly the same as for the parent cytokinin. The cytokinin probe  
 was  
 covalently incorporated into the receptor protein by irradiation with  
 UV  
 light, and its presence was quant. established by assaying for  
 nondialyzable 14C. The labeled protein was subjected to  
 SDS-polyacrylamide gel electrophoresis and the subunits assayed  
 for  
 radioactivity by fluorog. Each of the 4 subunits of the receptor  
 protein  
 was labeled with 14C to some extent. Apparently all 4 subunits of

the  
 protein either actively participate in the formation of the cytokinin  
 binding site or exist in close proximity to it.